

In re OREN ET AL., Application No. 10/042,836  
Amendment C

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-26 (canceled)

Claim 27 (currently amended): An apparatus comprising:

means for programming an associative memory with a plurality of sets of entries, each of the plurality of ~~set~~ sets of entries including a different one of a plurality of unique decoder fields;

means for ~~receiving~~ acquiring a piece of information including a data item and a nested flag indication signifying whether or not a nested operation is to be performed using the data item included in said piece of information; and

~~means for identifying a nested condition associated with the data item; and~~

means for performing the nested operation using the data item extracted from said piece of information in response to the nested flag indication signifying to perform the nested operation, the nested operation including generating in a producing a predetermined sequence of a plurality of lookup words with a ~~predefined set~~ predetermined sequence of decoder fields of the plurality of unique decoder fields, wherein each of said produced plurality of lookup words includes the data item extracted from said piece of information and a respective particular decoder field of the predetermined sequence of decoder fields; and

means for performing a lookup operation in the associative memory using each of said produced plurality of lookup words to produce a plurality of lookup results corresponding to the data item with each of the predetermined sequence of decoder fields.

Claim 28 (canceled)

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Claim 29 (currently amended): The apparatus of claim 27, further comprising means for forwarding the plurality of lookup results and a lookup indication to a receiver another device or component, wherein the lookup indication signifies whether or not said nested operation was performed for said piece of information or the data item.

Claim 30-31 (canceled)

Claim 32 (new): The apparatus of claim 27, wherein the associative memory is a content-addressable memory.

Claim 33 (new): The apparatus of claim 27, wherein said producing the predetermined sequence of the plurality of lookup words with the predetermined sequence of decoder fields includes using a shift register to generate the predetermined sequence of decoder fields.

Claim 34 (new): The apparatus of claim 27, including means for performing a single lookup operation with a lookup word including the data item extracted from said piece of information in response to the nested flag indication signifying not to perform the nested operation instead of performing said nested operation for the data item.

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Claim 35 (new): A method for performing lookup operations, the method comprising:  
programming an associative memory with a plurality of sets of entries, each of the plurality of sets of entries including a different one of a plurality of unique decoder fields;  
acquiring a data item and a nested flag indication signifying whether or not a nested operation is to be performed using the data item;  
performing the nested operation using the data item in response to the nested flag indication signifying to perform the nested operation, the nested operation including producing a predetermined sequence of a plurality of lookup words with a predetermined sequence of decoder fields of the plurality of unique decoder fields, wherein each of said produced plurality of lookup words includes the data item and a respective particular decoder field of the predetermined sequence of decoder fields; and  
performing a lookup operation in the associative memory using each of said produced plurality of lookup words to produce a plurality of lookup results corresponding to the data item with each of the predetermined sequence of decoder fields.

Claim 36 (new): The method of claim 35, wherein the associative memory is a content-addressable memory.

Claim 37 (new): The method of claim 35, wherein said producing the predetermined sequence of the plurality of lookup words with the predetermined sequence of decoder fields includes using a shift register to generate the predetermined sequence of decoder fields.

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Claim 38 (new): One or more computer-readable media containing computer-executable instructions for performing operations using an associative memory programmed with a plurality of sets of entries, each of the plurality of sets of entries including a different one of a plurality of unique decoder fields based on an acquired piece of information including a data item and a nested flag indication signifying whether or not a nested operation is to be performed using the data item included in said piece of information, said operations comprising:

testing the nested flag indication to identify whether or not the nested flag indication signifies to perform the nested operation; and

performing the nested operation using the data item in response to the nested flag indication signifying to perform the nested operation, the nested operation including producing a predetermined sequence of a plurality of lookup words with a predetermined sequence of decoder fields of the plurality of unique decoder fields, wherein each of said produced plurality of lookup words includes the data item and a respective particular decoder field of the predetermined sequence of decoder fields;

wherein the associative memory is configured to perform a lookup operation using each of said produced plurality of lookup words to produce a plurality of lookup results corresponding to the data item with each of the predetermined sequence of decoder fields.

Claim 39 (new): The method of claim 38, wherein the associative memory is a content-addressable memory.